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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/685,412	10/10/2000	Koji Hasegawa	SONY-U0256	4878

22850 7590 04/02/2004

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
TRAN, KHANH C	

ART UNIT	PAPER NUMBER
2631	10

DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/685,412	Applicant(s) HASEGAWA ET AL.	
	Examiner Khanh Tran	Art Unit 2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-8 and 10-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5-8,12 and 13-14* is/are rejected.

7)☒ Claim(s) *3,4,10 and 11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The Amendment filed on 01/28/2004 has been entered. Claims 1, 3-8, and 10-14 are pending in this Office action. Claims 2 and 9 are cancelled.

Response to Arguments

2. Applicant's arguments, see pages 8-9 in the Amendment, filed on 01/28/2004, with respect to the rejection(s)of claim(s) 1, 5-7, 8, 12-14 under 35 U.S.C 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Durboraw, III et al. U.S. Patent 6,178,195 B1 and Krasner U.S. Patent 6,064,336.

3. Amendments to the Drawings filed on 01/28/2004 have been reviewed and approved.

Claim Objections

4. Applicant is advised that should claim 6 be found allowable, claim 7 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing

one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

5. Applicant is advised that should claim 13 be found allowable, claim 14 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

6. Claim 11 is objected to because of the following informalities: *claim 11 is referred to cancelled claim 9*. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Durboraw, III et al. U.S. Patent 6,178,195 B1.

Regarding claim 1, Durboraw, III et al. invention is directed to a method and apparatus for detecting and tracking GPS signals, first obtain precision

timing and frequency reference information from a relatively high-power, secondary signal, and then use such reference information to perform narrow-band detection of the GPS spread spectrum signal. Figure 2 illustrates a receiver unit 50 includes an antenna 52, frequency down-converter 54, secondary-system receiver 56, and spread spectrum receiver 58.

In regard to the claimed steps of acquiring high precision frequency information by a standard wave, and of acquiring high precision time information provided by the standard wave, in column 6, lines 5-17, figure 3 illustrates a flow chart of a method performed by a receiver unit 50 shown in Figure 2 in accordance with a preferred embodiment. In step 70, the receiver unit 50 acquires a secondary source signal, e.g. Iridium signals transmitted by an Iridium satellite. The secondary source signal includes information from which a precision timing reference and a precision frequency reference can be determined in steps 72 and 74.

In regard to the claimed step of measuring an oscillation frequency of a reference oscillator or a frequency variation of the oscillation frequency using the received high-precision frequency information, Durboraw, III et al. does not expressly disclose the step as claimed. However, in column 6, lines 35-42, Durboraw, III et al. further discloses the frequency reference is used to generate a highly-precise synthesized reference signal which is used for GPS signal detection in step 76. The timing reference is used to align the synthesized reference signal with the timing of the received spread spectrum signal. One of

ordinary skill in the art will appreciate that the receiver unit 50 would include a local reference oscillator. From step 76, it would have been obvious for one of ordinary skill in the art at the time the invention was made that the step, as taught by Durboraw, III et al. would impliedly include measuring the frequency variation of local oscillation frequency using the acquired precision frequency reference and use the result to generate a highly-precise synthesized reference signal which is used for GPS signal detection.

In regard to the claimed step of performing arithmetic operation using the high precision time information in place of time information sent from said GPS satellite. As recited in step 76, the timing reference is used to align the synthesized reference signal with the timing of the received spread spectrum signal. One of ordinary skill in the art will appreciate that the receiver unit 50 uses the precision time information to achieve synchronization. Durboraw, III et al. does not expressly disclose performing a positioning arithmetic operation. Nevertheless, Durboraw, III et al. discloses in step 78 that once the spread spectrum is detected, the signal can be acquired in any suitable way known to one of ordinary skill in the art. The aforementioned disclosure expressly teaches performing arithmetic operation as normally does in a GPS receiver after synchronization step.

Regarding claim 8, the rejection argument is very similar to that of claim 1. Referring back to figure 2, the receiver unit 50 includes a spread spectrum receiver 58,

corresponding the claimed GPS receiver section; a secondary-system receiver 56, corresponding to the claimed standard wave receiver section to acquire high precision frequency information. The secondary-system receiver 56 also acquires a high precision timing information as claimed. As recited above, the precision frequency reference is used to generate a highly-precise synthesized reference signal which is used for GPS signal detection. The timing reference is used to align the synthesized reference signal with the timing of the received spread spectrum signal. Durboraw, III et al. does not show the claimed frequency measurement section. Nevertheless, one of ordinary skill in the art will appreciate that the claimed frequency measurement section is embedded in the spread spectrum receiver in order to generate a highly-precise synthesized reference signal as taught by Durboraw, III et al.

8. Claims 5-7 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Durboraw, III et al. U.S. Patent 6,178,195 B1 as applied to claim 1 above, and further in view of Krasner U.S. Patent 6,064,336.

Regarding claim 5, in addition to the rejection argument stated in claim 1, Krasner teachings are very similar to those of Durboraw, III et al.. Krasner utilizes a precision carrier frequency signal for calibrating a local oscillator of a GPS receiver, which is used to acquire GPS signals. In figure 1 A, the mobile receiver in Krasner invention further includes a battery & power regulator & power switches 36 to implement a particular sequence of power management according to one embodiment of the invention. As disclosed in column 14 line 59 through column 15 line 59, Krasner

discloses that it will be appreciated by one of ordinary skill in the art that there are numerous ways known in the art to reduce power, e.g. including slowing down the clock provided to a synchronous, clocked component as well as completely shutting down power to a particular component or turning off certain circuits of a component but not others. Krasner further states that it will also be appreciated that phase locked loops and oscillator circuits require start up and stabilization times, and thus not to be powered down completely. Hence, keeping the oscillator circuits on is to keep calibrate the local oscillator of a GPS receiver using precision carrier frequency signal. That step would be equivalent to the step as claimed in the patent application. Furthermore, it would have been obvious for one of ordinary skill in the art at the time the invention was made that Durboraw, III et al. receiver could be modified to include a power management scheme as taught by Krasner since reducing power consumption in a mobile receiver is well known in the art, and as pointed out earlier, Krasner and Durboraw, III et al. teachings both use a precision carrier frequency signal to calibrate a local oscillator.

Regarding claims 6-7, figure 6B shows another embodiment of a mobile GPS unit for calibrating the GPS local oscillator used to acquire the GPS signals in the mobile unit. In column 13, line 56 through column 14, line 13, a Costa Loop Demodulator 648 and Temperature Compensated Voltage Controlled Oscillator (TCVCXO) 645 employed in the Carrier Phase locking section 640 is phase-locking the incoming signal's carrier frequency. The Costa loop provides a frequency correction

voltage to the reference frequency generator TCVCXO 645 that causes the output of TCVCXO 645 to be phase and frequency aligned with the carrier frequency. The output of TCVCXO 645 is then used to calibrate the GPS local oscillator.

Regarding claim 12, said claim is rejected using similar rejection argument as in claim 5.

Regarding claims 13-14, said claim is rejected using similar rejection argument as in claim 6.

Allowable Subject Matter

9. Claims 3-4 and 10 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 703-305-2384. The examiner can normally be reached on Tuesday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 703-306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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